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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,303	03/18/2004	In-Hwan Oh	24317/83001	5789

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EXAMINER

RILEY, SHAWN

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/803,303

Applicant(s)

OH, IN-HWAN

Examiner

Shawn Riley

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6,7,9 and 11-17 is/are rejected.
- 7) ☒ Claim(s) 2-5,8,10,18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to amendment*

1. Applicant(s) amendment and remarks filed 9 Feb 2006 have been fully considered and deemed persuasive however are moot in the light of the new prior art.

2.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 6-7, 9, 11-17 are rejected under 35 U.S.C. §103 as being obvious in view of Fitzgerald (U.S. Patent 5,835,361) in light of Nilssen (U.S. Patent 6,107,749). Fitzgerald et al shows,<sup>1</sup> (in, e.g., the(ir) figure 1 and corresponding disclosure) the invention as discussed below. However, Fitzgerald does not show a resonant circuit coupled to the primary to provide power to the control logic. Nilssen shows in figure 4, e.g., a resonant circuit including a tank inductor (Lx) and a tank capacitor (Cx) which provide power to the controller (Icx) through the various intervening circuitry. It would have been obvious to provide power to a controller using a resonant circuit of Nilssen into the circuit of Fitzgerald for the reason of providing a means to

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<sup>1</sup> Note claims will be addressed individually and the material in parentheses are the examiner's annotated comments. Further unless needed for clarity reasons, recited limitation(s), will be annotated only upon their first occurrence. Annotated claims begin with the phrase "As to claim". Claims that are not annotated are seen as having already had the invention(s) addressed previously in an annotated claim. Bolded words/phrases indicate rejected material based 112 paragraph rejections. Underlined words/phrases indicate objected to material.

Art Unit: 2838

power the controller independent of an outside power supply. Note that the tank inductance of Nilssen is separate from the primary winding (PWx). See, e.g., column 6 lines 38-52).

As to claim 1;

A converter-controller, operable to control a converter having a transformer (L1/L2), the transformer having a primary (L1) and a secondary coil (L2), the converter-controller comprising: a power device (Q3), coupled to the primary coil of the transformer; a resonant circuit (C6 and L1, see, e.g., column 2 lines 13-21), coupled to the primary coil and the power device; a voltage regulator (D6, R11/R12 etc), coupled to the resonant circuit; and a control logic (including 23, IC1, Q2, etc.) coupled to the voltage regulator a control logic, coupled to the voltage regulator, wherein the control logic is configured to operate the power device at an essentially constant frequency by varying the length of switch-on and switch-off intervals of the power device (this is called pulse width modulation—Q2 is described as a duty cycle modulator at column 5 lines 36-44).

As to claim 6;

The converter-controller of claim 1, wherein the power device is one of a MOS-FET (Q3 is a mosfet), a bipolar junction transistor, and an insulated gate bipolar transistor.

As to claim 7;

Art Unit: 2838

The converter-controller of claim 1, wherein: the control logic is coupled to a gate of the power device; and the control logic is operable (it turns the circuit on and off) to control an on/off time of the power device.

As to claim 9;

The converter-controller of claim 1, wherein the high voltage link (for examination purposes, the high voltage link is considered to be C4) is coupled to at least one of a DC source and a rectified AC source.

As to claim 11;

The converter-controller of claim 1, wherein: the secondary coil of the transformer is coupled to the control logic (see, e.g., IC1), operable to provide a feedback signal.

As to claim 12;

Fitzgerald discloses a photo-diode for feedback purposes.

As to claims 13 and 15, for method claims, note that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the

Art Unit: 2838

device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated.

The method of operating a converter-controller, comprising a power device, coupled to a primary coil of a transformer of a converter, a resonant circuit, a voltage regulator, and a control logic, the method comprising: powering the control logic by the power device, the resonant circuit and the voltage regulator; and controlling, by the control logic, the length of switch-on and switch-off intervals of the power device, thereby controlling an output voltage of the converter.

The method of claim 13, wherein the power device is operated at an essentially constant frequency.

As to claim 14;

The method of claim 1, wherein the converter is operated in one of a flyback mode and a forward mode (Fitzgerald indicates that the converter is implemented in a forward mode of operation).

As to claim 16;

A converter-controller, operable to control a converter having a transformer, the transformer having a primary and a secondary coil, the converter-controller comprising: a power device, coupled to the primary coil of the transformer; a series resonant circuit, coupled to the primary coil and the power device; a voltage regulator, coupled to the resonant circuit; and a control logic, coupled to the voltage regulator, wherein an operating voltage of the control logic is clamped (the clamping is part of the over-current protection circuit which clamps the operating voltage of the control logic).

Art Unit: 2838

As to claim 17;

The converter-controller of claim 16, wherein the operating voltage of the control logic is clamped below 10 Volts (clamping is to ground, i.e., less than 10 volts).

*Allowable Subject Matter*

2. Claims 2-5, 8, 10, and 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
  3. As allowable subject matter has been indicated, applicant's response must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 C.F.R. § 1.111(b) and section 707.07(a) of the M.P.E.P.
  4. The following is an examiner's statement of reasons for allowance: No prior art uncovered anticipates or renders obvious applicant(s) claimed converter-controller including a central node; a resonant capacitor, coupled between the central node and the power device; a resonant diode, having an anode and a cathode, the cathode of the resonant diode coupled to the central node; and a resonant inductor, coupled between the anode of resonant diode and a ground.
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Art Unit: 2838

Further, no prior art uncovered anticipates or renders obvious applicant(s) claimed converter-controller including a regulator diode, having an anode and a cathode, the anode of the regulator diode coupled to the central node; a regulator resistor, coupled to the cathode of the regulator diode; a Zener diode, coupled between the regulator resistor and a ground; and a regulator capacitor, coupled in parallel to the Zener diode.

### *Conclusion*

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry from other than the applicant/attorney of record concerning this communication or earlier communications from the Examiner should be directed to the Patent Electronic Business Center (EBC) at 1.866.217.9197. Any inquiry from a member of the press concerning this communication or earlier communications from the Examiner or the application should be directed to the Office of Public Affairs at 703.305.8341. Any inquiry from the applicant or an attorney of record concerning this communication or earlier communications



Art Unit: 2838

from the Examiner should be directed to Examiner Riley whose telephone number is 571.272.2083. The Examiner can normally be reached Monday through Thursday from 7:30-6:00 p.m. Eastern Standard Time. The Examiner's Supervisor is Mike Sherry who can be reached at 571.272.2084. Any inquiry about a case's location, retrieval of a case, or receipt of an amendment into a case or information regarding sent correspondence to a case **should be directed to 2800's Customer Service Center** at 571.272.2815. Any papers to be sent by fax MUST BE sent to fax number 703.872.9306. Any inquiry of a general nature of this application should be **directed to the Group receptionist** whose telephone number is 571.272.2800. Status information of cases may be found at <http://pair-direct.uspto.gov> wherein unpublished application information is found through private PAIR and published application information is found through public PAIR. Further help on using the PAIR system is available at 1.866.217.9197 (Electronic Business Center).

March 06



**Shawn Riley**  
Primary Examiner